THE USE OF ATLAS DATA TO QUANTIFY SURFACE RADIATIVE BUDGETS IN FOUR US CITIES

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The additional heating of the air over the city is the result of the replacement of naturally vegetated surfaces with those composed of asphalt, concrete, rooftops and other man-made materials. The temperatures of these artificial surfaces can be 20 to 40 ºC higher than vegetated surfaces. This produces a dome of elevated air temperatures 5 to 8 ºC greater over the city, compared to the air temperatures over adjacent rural areas. This effect is called the "urban heat island". Urban landscapes are a complex mixture of vegetated and non-vegetated surfaces. It is difficult to take enough temperature measurements over a large city area to. The use of remotely sensed data from airborne scanners is ideal to characterize the complexity of urban albedo and radiant surface temperatures. The National Aeronautics and Space Administration (NASA) Airborne Thermal and Land Applications Sensor (ATLAS) operates in the visual and IR bands was used to collect data from Salt Lake City, UT, Sacramento, CA, Baton Rouge, LA. And San Juan, Puerto Rico with the main objective of investigating the Urban Heat Island (UHI). In this presentation we will examine the techniques of analyzing remotely sensed data for measuring the effect of various urban surfaces on their contribution to the urban heat island effect.